## MACHINE TRANSLATION

Over the years, Machine Translation has been a focus of investigations by linguists, psychologists, philosophers, computer scientists and engineers. It will not be an exaggeration to state that early work on MT contributed very significantly to the development of such fields as computational linguistics, artificial intelligence and application-oriented natural language processing.

## MACHINE TRANSLATION

**Machine translation**, commonly known as MT, can be defined as “translation from one natural language (source language (SL)) to another language (target language (TL)) using computerized systems and, with or without human assistance”

## PROS OF MACHINE TRANSLATION

It's fast: MT engines can translate thousands of words in just a few seconds, where human translators would much longer to translate the same amount of content.
It's cheap (or even free): some MT engines, like Google Translate, are freely available for public use. Even paid enterprise-level engines are fairly inexpensive at 10-20 USD/EUR per million characters.
It's easily accessible: as mentioned above, there are several engines available to the public on the web or through mobile apps, so anyone with internet access can use MT to access information in their preferred language.

## CONS OF MACHINE TRANSLATION

It doesn't always sound natural: MT has come a long way in recent years, but machine translations can often be word-for-word and sound unnatural to readers.
It lacks context: MT engines produce translations segment-by-segment, so they can miss out on context, which leads to problems with consistency throughout the text.
It doesn't work well (or at all) for some languages: depending on the complexity of a language, MT engines may not perform well for certain languages. Additionally, because MT engines rely on vast amounts of bilingual data to produce translations, low-resource languages are either poorly translated by MT or not supported at all.

## HISTORY OF MACHINE TRANSLATION

**Although we may trace the origins of machine translation (MT) back to seventeenth century ideas of universal (and philosophical) languages and of 'mechanical' dictionaries, it was not until the twentieth century that the first practical suggestions could be made. The history of machine translation can be divided into five (5) periods**

## HISTORY OF MACHINE TRANSLATION

First period (1948-1960): The beginning.
Second Period (1960-1966): Parsing and disillusionment.
Third period (1966-1980):New birth and hope.
Fourth Period (1980-1990):Japanese invaders.
Fifth Period (since 1990): The Web and the new vague of translators.

**2.1 First period (1948-1960): The beginning.**

1949 : Warren Weaver in his Memorandum of 1949 proposed the first ideas on the use of computers in translation, by adopting the term computer translation.

1952 : The first symposium of machine translation, entitled Conference on Machine Translation, held in July 1952 at MIT under leadership of Yehoshua Bar-Hillel.

1954 : The development of the first automatic translator (very basic) by a group of researchers from Georgetown University in collaboration with IBM, which translates into more than sixty (60) Russian sentences into English. The authors claimed that within three to five years, machine translation would not be a problem.

1954 : Victor Yngve published the first journal on MT, entitled « Mechanical translation devoted to the translation of languages by the aid of machines ».

**2.2 Second Period (1960-1966) Parsing and disillusionment**

• Early 1960s This parsing is put forward as the only possible avenue of research to advance the machine translation. Thus there already many parsers developed from different types of grammars, as grammar and dependency gramma Tesnière stratificationnelle Lamb

• 1961 : In February of this year that computational linguistics is born, Thanks to weekly lectures organized by David G. Hays at the Rand Corporation in Los Angeles. These conferences will be included as papers in the International Conference on Machine Applied Language

1964 : the creation of committee ALPAC(Automatic Language Processing Adviso Committee) with American government to studies the perspectives and the chance of machine translation

1966 : ALPAC published his famous rapport in which it concluded that its works o machine translation is just wasting of time and money ; the conclusion of this rapport is it had a negative impact on their search (MT) for a number of years

### 2.3 Third period (1966-1980): New birth and hope

1970 : Start of the project REVERSO by a group of Russian researchers.
1970 : Development of System SYSTRAN1 (Russian-English) by Peter Toma, who was at that time a member of a group search for Georgetown.
1976: Creation of system WEATHER in the project TAUM (machine translation in the university of Montreal) under the direction of Alai Colmerauer for the machine translation weather forecasts for the general public, this system was created by group of researchers
1978: Creation of system ATLAS2 by the Japanese firm FUJITSU, this translator was based on rules also he is able to translate from Korean to Japanese and vice versa

### 2.4 Fourth Period (1980-1990): Japanese invaders

1982 : The Japanese firm SHARP markets its Automatic translator DUET (English - Japanese), this translator was based on rules an approach to translation transfer
1983: as computer giant, NEC develops it's own system of translation based on algorithm called PIVOT. Marketed under the name of Honyaku Adaptor II, the version public the system of translation of NEC is also based on the method of pivot, by using Interlingua.
1986: Development of system PENSEE by OKI3, which is a translator (Japanese-English) based on rules.
1986: The group Hitachi developed his own translation system based on rules (which is an approach taken by transfer), christened on HICATS (Hitachi Computer Aided Translation System / Japanese- English).

**2.5 Fifth Period (since 1990): the Web and the new vague of translators**

1993: The project C-STAR (Consortium for Speech Translation Advanced Research) is an international cooperation. The theme of project is the machine translation of the parole in the field of tourism (dialogue client travel agent), by videoconference. these project birth the system C-STAR I which dealt three (03) languages (English, German et Japanese) and made the first demonstrations transatlantic trilingual in January 1993

1998: Marketing the translator REVERSO by the company Softissimo.

2000: the Development of system ALPH by Japanese laboratory ATR, this translator (Japanese-English and Chinese - English) takes an approach based on examples.

•2005: The appearance of the first web site for automatic translation ,like Google (http://translate.google.fr/).

2007: METIS-II is a hybrid machine translation system, in which insights from Statistical, Example based, and Rule-based Machine Translation (SMT, EBMT, and RBMT respectively) are used.

2008 : 23% of internet users, have used the machine translation and 40 % considering doing so

2009: 30% the professionals have used the machine translation and 18% perform a proofreading.

2010: 28% of internet users, have used the machine translation and 50% planning to do.